

Claims

- [c1] 1. A device for the preparation of inhibitor compounds (NCEs) for testing of *in vivo* drug-drug interactions in mammals, wherein said device comprises a computer controlled and coordinated device having:
- a) a freezer unit for storing microsomes;
 - b) thawing means for thawing said microsomes prior to use of the microsomes in the preparation of testing samples;
 - c) timed computerized elements for removing frozen microsomes from the freezer unit to the thawing means for the thawing of the microsomes;
 - d) two computer controlled and timed manipulation and transport mechanisms for the holding and transporting of multi-well test plates to operational stations of said device and for positioning of the plates at said operational stations for appropriate operation thereat;
 - e) a first operation station with fluid introduction element for simultaneously filling each of a plurality of predetermined wells of a reaction test plate with a preset quantity of thawed microsomes;
 - f) a second operation station for combining microsomes in respective wells of said reaction test plate with an inhibitor compound and a cytochrome P450 enzyme substrate;
 - g) a third operation station for incubating said combination in each of the respective wells to an *in vivo* temperature for said mammal for reaction thereof for a pre-determined period of time to form reaction products;
 - h) means for purification of any reaction products from the wells of said reaction plate; and
 - i) computerized timing means for synchronizing simultaneous operations with respect to each of the plates and the respective contents in the wells thereof, and timing of the thawing and pre-incubation and incubation periods and initiation of thawing of microsomes for a subsequent test run;
 - j) at least one holding area for each vial holding pre-thawed microsomes for use in subsequent test runs.

- [c2] 2. A device for preparing inhibitor compounds for *in vitro* testing of drug-drug interactions in mammals, said device comprising a computer controlled and

coordinated device having:

- a)integrated elements for holding at least two test plates in tandem with each tray having a multiplicity of test wells;
- b)elements for removing frozen microsomes from a freezer site for the thawing thereof and for the buffering of the microsomes and addition of co-factor thereto;
- c)manipulation and transport mechanism for transporting the test plates to operational stations of said device and for positioning of the plates at said operational stations for appropriate operation thereat;
- d)at least one operation station with means for simultaneously filling a plurality of predetermined wells of a reaction plate with a preset quantity of microsomes;
- e)an element for incubating the microsomes, the inhibitor compound and cytochrome P450 enzyme substrates and mixtures thereof to a temperature of 37 ° C;
- f)a mechanism for vacuum filtration of any reaction products obtained with said incubation; and
- g)computerized timing means for synchronizing simultaneous operations with respect to each of the plates and the respective contents in the wells thereof, as well as timing of the thawing and pre-incubation and incubation periods and initiation of thawing of microsome for a subsequent test run.